English Version

Visit our website (www.zalman.co.kr) and watch the Reserator 2 installation video for an installation overview.

※ Please read this manual thoroughly before installation.

※ The specifications of this product and its components may change without prior notice to improve the performance thereof.

Installation and Operational Notes

Installation Notes

1. Make sure that the power source's output voltage and frequency are compatible with the power input requirements of the water pump before installing (input voltage and frequency of the water pump are shown on the box).
2. Do not place in dusty or humid conditions, under direct sunlight, or near a heat source such as a room heater.
3. Do not drop or subject it to excessive force.
4. CPU socket compatibility must be checked.
5. Familiarize yourself with this manual.
6. Do not mix any contaminant with the coolant when filling, for it may cause product failure.
7. Check for leaks on Water Blocks before installation.

Operational Notes

1. Reserator 2 simultaneously operates with the PC. The power must first be supplied to the AC power cable before turning on the PC because it uses an AC pump.
2. Place the Reserator 2 and the PC body at the same location for use.
3. If the coolant isn't circulating properly, or if the pump flux becomes too low, then the red blinkers will flash as well as warning sound. In this case, turn the PC OFF immediately.
4. Do not place any objects on the product.
5. Install on a flat surface with no vibration or slant, and do not tilt or lay horizontally.
6. Use distilled water with the coolant, regularly check the amount of coolant, and replenish as needed (must be replenished every year).
7. If a leak is found, turn off the system immediately, and contact the place of purchase or ZALMAN.
8. If the system will not be used for an extended period of time, then turn the Water Pump OFF.
9. When moving the system, separate the Reserator from the PC case before moving.
10. Do not let any air bubbles form inside the Water Block and the tubes during operation.
11. Always make sure that the Water Pump is functioning properly.
12. If the power supply cord is damaged, it must be replaced by the manufacturer, its service agent, or a similarly qualified person in order to avoid a hazard.

English

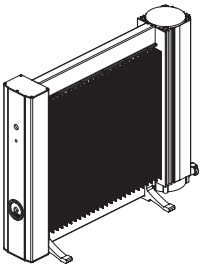
Table of Contents

Installation and Operational Notes

1. Features

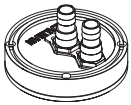
Reserator 2 incorporates Zalman's HCET(High Capacity Extrusion Technique) technology, high efficiency cooling technology, and optimal heat dissipation design for exceptional cooling performance even through natural convection cooling. The Reserator 2 is a noiseless and fanless water cooling system that incorporates a and Flow Indicator in the front section, a high efficiency heatsink in the middle section, and a water tank and water pump in the back section which allows easy installation and use. The anodized product and the provided coolant prevents corrosion. The new CPU Water Block (ZM-WB4 Gold), VGA Water Block (ZM-GWB3), and the optional Northbridge Water Block (ZM-NWB1) and VGA RAM Water Block (ZM-RWB1) enable the setup of a complete Water Cooling System.

1. 1 Reserator (Reservoir + Radiator + Water Pump)



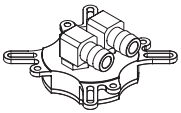
"Reserator" is a compound word derived from 'Reservoir' and 'Radiator'- it acts as a reservoir while radiating heat. This product works well with natural convection and integrates a Water Pump inside for convenience. It incorporates a flux observation/warning device as well as the Flow Indicator in the front, which further allows a safe and convenient use of the product.

1. 2 CPU Water Block (ZM-WB4 Gold)



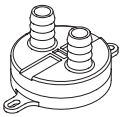
The CPU Water Block incorporates a pure copper base for excellent heat transfer, and is gold plating to prevent corrosion. It supports Pentium 4 Socket 775/478 CPU and AMD Socket 754/939/940 CPU, and is designed to be light weight and easy to install.

1. 3 VGA Water Block (ZM-GWB3)



The VGA Water Block incorporates a light weight pure aluminum base for high cooling performance, and is anodized and coated to prevent corrosion. It also incorporates revolving fittings that provide freedom in direction when connecting them with the tubes, which further allows simple installation.

1. 4 Northbridge Water Block (ZM-NWB1, Optional)

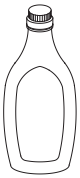


This anodized, pure aluminum block is built for high performance cooling, and is designed for compatibility with a wide variety of Northbridge chipsets.

1. 5 VGA RAM Water Block (ZM-RWB1, Optional)

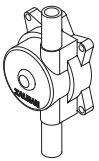
This anodized, pure aluminum RAM Water Block is built for high performance cooling, and is compatible with GeForce 7800/7900 and ATI X1800/X1900 in need of VGA RAM cooling. It provides easy installation.

1. 6 Anti-Corrosion Coolant (ZM-G300)



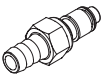
This coolant contains a high quality anti-corrosion agent for various materials including copper, aluminum, plastic, that prevents corrosion for long term operation.

1. 7 Flow Indicator



This component is connected with the circulation tube for checking the circulation of the coolant. When the coolant is actively circulating, its impeller rotates and the blue LED is brightly lit, providing easy indication of the circulation status.

1. 8 Quick Coupling



The Fittings incorporate valves that prevent leaks when disconnecting the PVC Tubes allowing quick, convenient separation and reassembly of the Reserator for transport and coolant replacement.

2. Specifications

2. 1 Reserator (Reservoir + Radiator+Water pump)

1) Dissipation Area : 1.5㎡
2) Weight : 7 kg
3) Dimensions : 76(L) x 436(W) x 369(H) mm
4) Material : Anodized Pure Aluminum
5) Max Coolant Capacity : 1.25 ℓ
6) Integrated Water Pump : 5 W, Qmax 300 ℓ/h
   (A type : 230V-50Hz, B type : 115V-60Hz, C type : 220V-60Hz, D type : 100V-60Hz)
7) Maximum Lift : 0.5 m

2. 2 CPU Water Block (ZM-WB4 Gold)

1) Weight : 135 g
2) Material : Polycarbonate Cover, Gold Plated Pure Copper Base
3) Dimensions : 63(L) x 63(W) x 16.5(H) mm
4) Compatibility : Intel Pentium 4 (Socket 775/478), AMD Sempron / AMD64 (Athlon 64/Athlon 64 FX/Opteron) (Socket 754/939/940)

2. 3 VGA Water Block (ZM-GWB3)

1) Weight : 100 g
2) Material : Anodized Pure Aluminum
3) Dimensions : 60.4(L) x 60.4(W) x 30(H) mm
4) Compatibility : Graphics cards with heatsink mounting holes

2. 4 Northbridge Water Block (ZM-NWB1, Optional)

1) Weight : 48 g
2) Material : Anodized Pure Aluminum
3) Dimensions : 43(L) x 43(W) x 30(H) mm

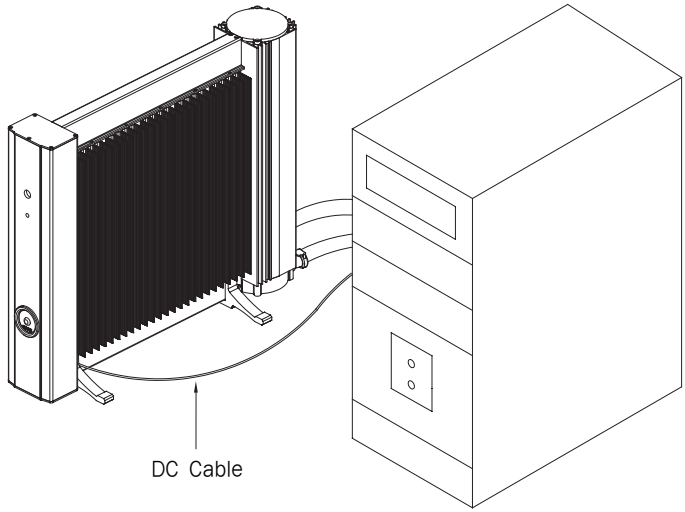
2. 5 VGA RAM Water Block (ZM-RWB1, Optional)

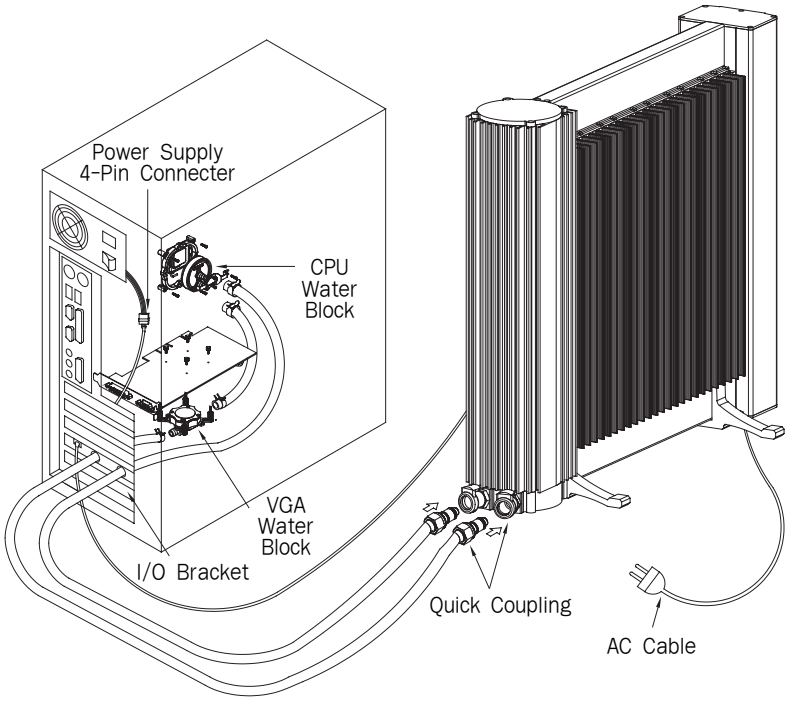
1) Weight : 120 g
2) Material : Anodized Pure Aluminum
3) Dimensions : 19(L) x 122(W) x 12(H) mm

2. 6 Anti-Corrosion Coolant(ZM-G300)

1) Material : Propylene Glycol & Anti-Corrosion Agent
2) Volume : 250 ml
3) Freezing Point : -9 ℃
4) Exchange Cycle : 1 year

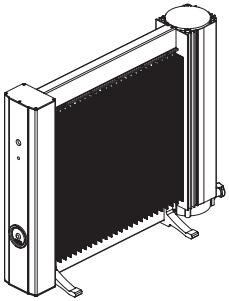
3. Installation Overview





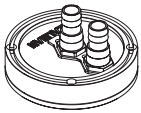
4. Components

4. 1 Reserator 2 - 1 UNIT



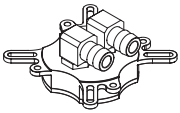
4. 2 CPU Water Block (ZM-WB4 Gold) 1SET

Please refer to the separately provided manual for the ZM-WB4 Gold.

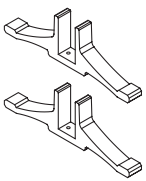


4. 3 VGA Water Block (ZM-GWB3) 1SET

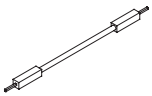
Please refer to the separately provided manual for the ZM-GWB3.



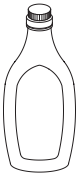
4. 4 Support- 2EA



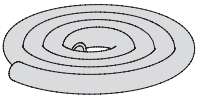
4. 5 Jump Cable 1EA



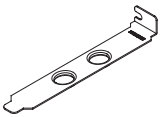
4. 6 Coolant (ZM-G300) 1EA



4. 7 PVC Tube 4m



4. 8 I/O Bracket 1EA



4. 9 Degassing Tube 1EA

4. 10 Tube Clamp 2EA

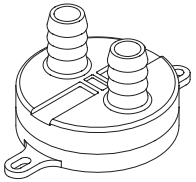
4. 11 Bolt- 4EA

4. 12 User's Manual

Optional Components

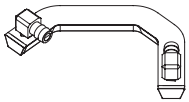
- **Northbridge Water Block (ZM-NWB1)**

  This anodized, pure aluminum block is built for high performance cooling, and is designed for Motherboard compatibility with a wide variety of northbridge chipsets.



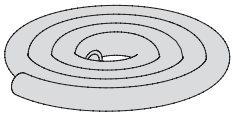
- **VGA RAM Water Block (ZM-RWB1)**

  This VGA RAM Water Block is compatible with GeForce 7800/7900 and ATI X1800/X1900 in need of VGA RAM cooling.



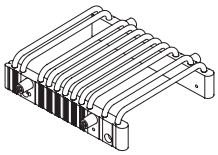
- **PVC Tube**

  If the standard PVC tube is found to be short or you need to use the tube on another system, additional tubes can be purchased separately (12 x 8 mm).



- **Heatpipe HDD Cooler**

  This component cools the heat generated from the hard disk drive and reduces the vibration that is passed onto the computer's enclosure.



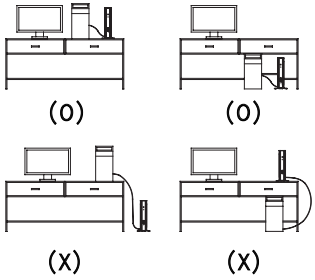
- **Power Supply**

  By implementing heat-sensor circuitry that controls the fan's speed in relation to the temperature within the power supply, noise is significantly reduced, making this component suitable for noiseless systems.

5. Installation Guide

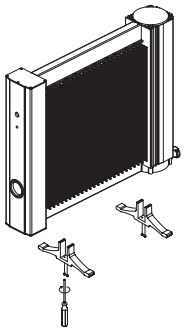
5. 1 Determine the Placement of the Reserator

The Reserator's placement should be determined in relation to the position of the PC.
Place it upright next to or slightly above the PC.
Note that if the Reserator is placed lower than the PC, the PVC tube's internal air pressure may prevent proper initial operation.



5. 2 Install the Supports

Install the enclosed Supports on to the Tab located on the bottom of the Reserator with the use of Bolts.



5. 3 Fill the Coolant

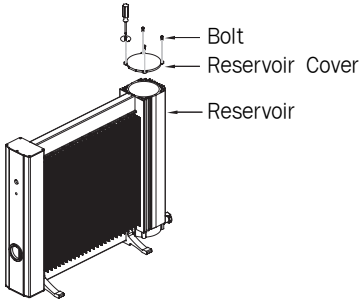
1) Take off the Reserator Cover after unscrewing its Bolts.
2) Fill with the provided coolant (ZM-G300, 250㎖) and one liter of distilled water.

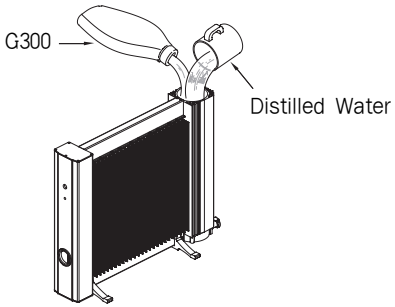
Note 1) Fill in approximately 50% to avoid overflow within the Reservoir, and must refill because the water level decreases once the coolant begins to circulate after perfectly releasing the air within the Reservoir.

Note 2) The provided coolant is a concentrate, and must be mixed down with distilled water in the ratio of 1:4.

Note 3) Read the warning label on the coolant before use.

Note 4) Keep this product and its associated system away from children.

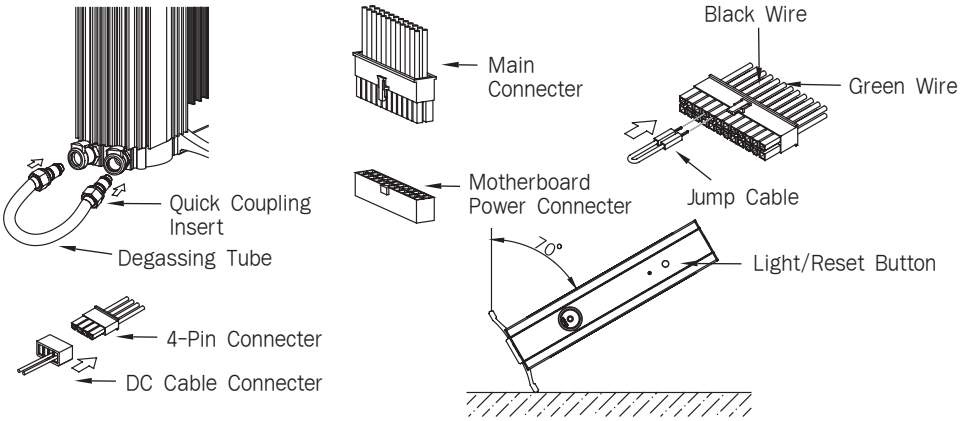




5. 4 Reserator's Coolant Circulation

1) The purpose of connecting the Jump Cable of the power supply's main connector (20P/24P) is to receive direct current (12V) needed for the test and leakage inspection.
2) Turn off all power of the PC and switch the Power Supply's ON/OFF button to OFF, connect the enclosed Degassing Tube to the Reserator's IN-OUT, and provide power to the AC cable.
3) Disconnect the power supply's main connector (20P/24P) and the CPU 4-Pin connector from the motherboard, and connect the green wire terminal with the black wire terminal with the use of Jump Cable.
4) Connect the Reserator's DC cable connector to the power supply's 4-Pin connector, and provide power to the PC by switching the power supply's ON/OFF button to ON.
5) Blue LED will light up and the impeller located inside the Flow Indicator of the Reserator's front panel will begin to rotate when the power is supplied. **(At this moment, let the coolant circulate for approximately 30 seconds, then cut off the direct current and wait for the impeller to stop. Once the impeller has come to a complete halt, you must restart it in order to entirely eliminate the internal air.)**
6) If the coolant is not circulating well due to internal air pressure during initial operation, then tilt the Reserator by approximately 70° and repeatedly turn the Reserator ON/OFF with the Light/Reset button to completely release internal air trapped within the Reserator body (must press the Reset button for longer than 5 seconds).
7) If the coolant is circulating properly, then turn of the power of the Power Supply, disconnect the Degassing Tube, and disassemble the Quick Coupling Insert.

Note 1) Pay attention so that the coolant inside the Reservoir does not spill.
Note 2) Check the state of air release with the tube. If air is completely released, then turn off the Power Supply and begin installing the water blocks.
Note 3) During coolant circulation, if the Flow Indicator fails to effectively sense the flux, then the alarm will go off and the red LED will flicker. Press onto the Light/Reset button for 5 seconds to reboot.



 ※ The specifications of any product may change without prior notice to improve performance.

5. 5 Install the CPU Water Block (ZM-WB4 Gold)

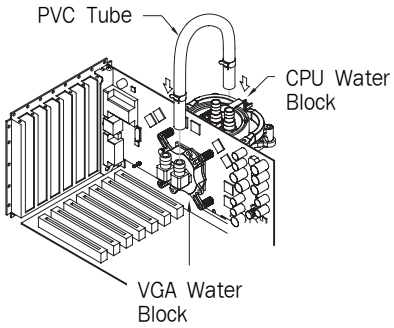
1) Refer to the manual included with the ZM-WB4 Gold for installation instructions.
2) If physical interference occurs while installing the Water Block, then stop the installation.

5. 6 Install the VGA Water Block (ZM-GWB3)

1) Refer to the manual included with the ZM-GWB3 for installation instructions.
2) If physical interference occurs while installing the Water Block, then stop the installation.

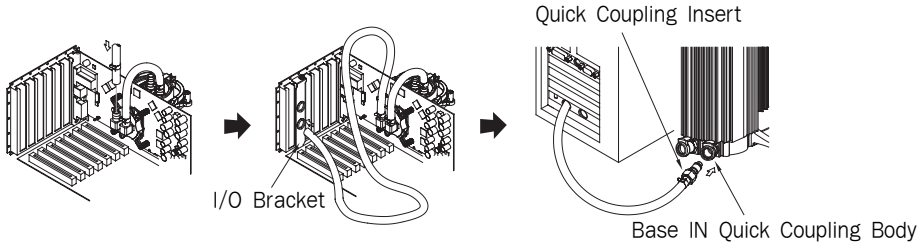
5. 7 Connect the CPU Water Block and the VGA Water Block

Connect the two Water Blocks with the PVC Tube as shown in the diagram. Must install the Tube Clamp



5. 8 Connect the VGA Water Blcok with Reserator's Base IN

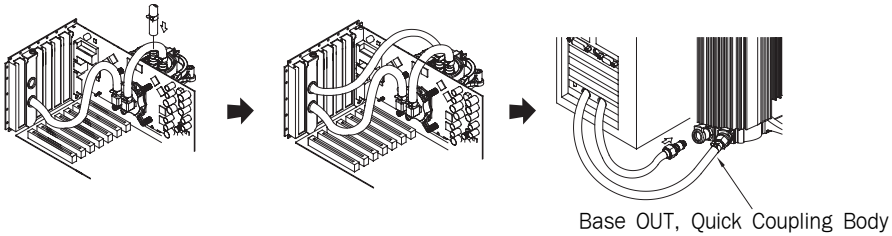
1) Connect one end of the PVC Tube to the VGA Water Block Fitting and fasten with a Tube Clamp as shown in the diagram. .
2) Pull out the PVC Tube through the I/O Bracket hole on the computer case.
3) Connect the Quick Coupling Insert that has been disconnected from the Degassing Tube to the other end of the PVC tube, and fasten it with the use of Tube Clamp.
4) Plug the Quick Coupling Insert into the Reserator's Base IN fitting.



5. 9 Connect the CPU Water Block with the Base Out

1) Connect one end of the PVC Tube to the CPU Water Block Fitting and fasten with Tube Clamp as shown in the diagram.
2) Pull out the PVC Tube through the tube hole of the I/O Bracket.
3) Connect the Quick Coupling Insert to the other end of the PVC Tube, and fasten with Tube Clamp.

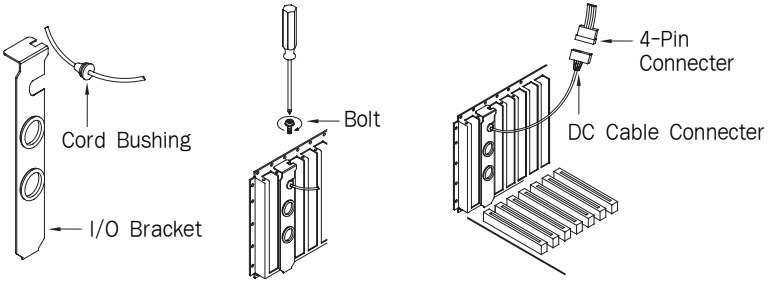
4) Plug the Quick Coupling Insert into the Base OUT located on the lower part of the Reserator



5. 10 Connect DC Power Cable

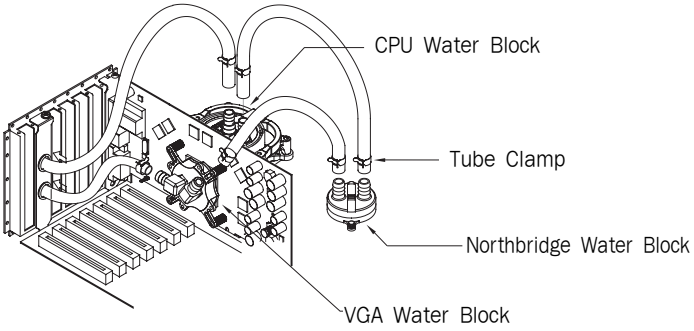
1) Fit the DC Cable's Cord Bushing into the groove of the I/O Bracket, and fasten the I/O Bracket with the use of Bolts.
2) Connect the DC Cable connector to the 4-Pin connector of the Power Supply.

Note 1) Do not exert excessive force when connecting the connector.
Slowly connect with two hands.



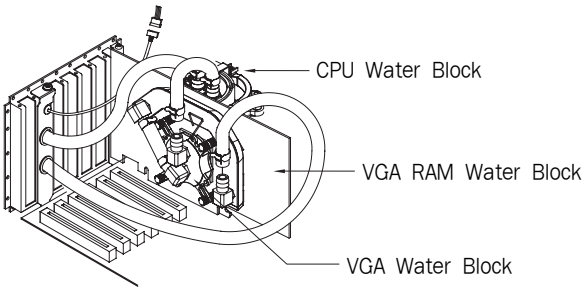
5. 11 Installing the Northbridge Water Block

1) To install the Northbridge Water Block, connect as shown in the diagram below.
2) Remember to install Tube Clamps on the PVC Tubes during installation.



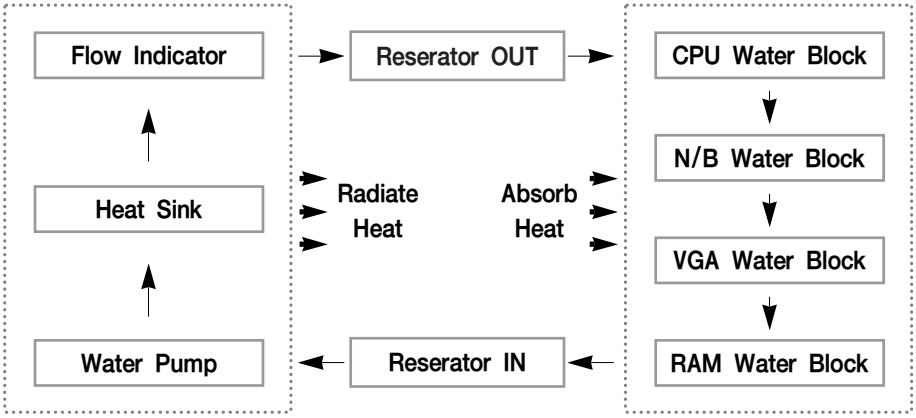
5. 12 Installing the VGA RAM Water Block

1) To install the VGA RAM Water Block, connect as shown in the diagram below.
2) Remember to install Tube Clamps on the PVC Tubes during installation.



5. 13 Confirm Proper Installation

1) Check that the product is placed properly.
2) Confirm that the coolant circulation path is correct as shown below.
3) Lightly tug the PVC tube connected to each of the fittings to check for loose ends.



5. 14 Leakage Inspecting and Test Run

1) Supply power to the Reserator's AC cable, and check to see if the green wire terminal and the black wire terminal of the power supply's main connector are connected to each other with Jump Cable.
2) Check the amount of coolant inside the Reserator's Reservoir, and fill it by approximately 70%.
3) Connect the power supply's 4-Pin connector to the Reserator's DC cable connector, and provide power for the Power Supply by switching its ON/OFF button to ON.
4) Once the power is supplied, check to see if the flow indicator's impeller placed inside the Reserator's front panel is rotating, if the Blue LED is lit, and if the coolant is being circulated to each water block.

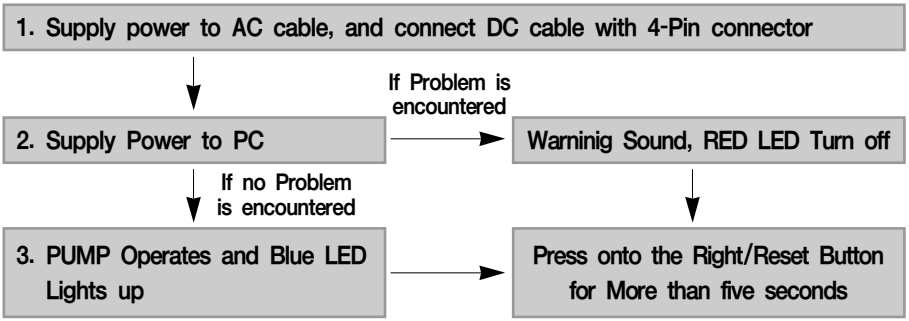
5) Check for leakage at each connector. Leakage can lead to short-circuit and damage of the motherboard and other components.
6) If leakage occurs, immediately stop the pump, clean the leakage area with tissue paper, and reassemble the leakage area.
7) If there is no leakage, remove the power Jump Cable of the power supply's main connector. Now connect the power supply's main connector to the motherboard's power connector, and operate the PC. (connect the disassembled CPU 4-Pin connector as it originally was.)

Note 1) Power must always be supplied to the Reserator's AC cable in order for the Reserator and the PC to be run at the same time. Must check to see if the power is constantly being supplied to the AC cable.

Note 2) Using the Reserator AC power and the PC power on the same multi-tab is recommended.

Note 3) After the test run is complete and everything is functioning properly, must check to see if the Reserator's DC cable is connected to the power supply's 4-Pin connector.

5. 15 How to Use the Front Panel Controller



5. 16 Front Panel Controller Functions

1) Flux Check

Warning sound will go off and the red LED will flicker when the flux falls below a certain level due to a problem in pump, leakage, or other problems. Detection of these problems allows prevention of damage.

2) Simultaneous Operation with PC

By supplying power to the AC Cable, and by connecting the DC Cable to the 4-Pin Connector of the Power Supply, it can operate in accordance with the PC power's ON/OFF, which allows ease and simplicity in use.

3) Light ON/OFF

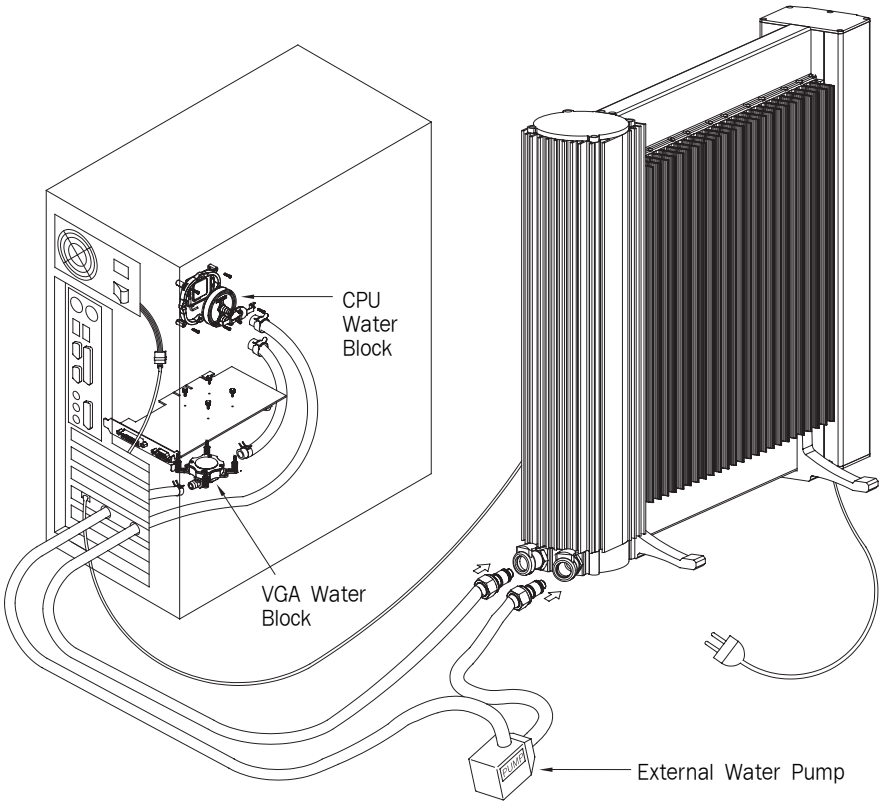
The Blue LED will turn on if the Light/Reset button is shortly pressed, and the Blue LED will turn off if the Light/Reset button is pressed again. This allows the users to be able to quickly check whether the product is in use or not.

4) Flow Indicator

The coolant flow can be observed with naked eyes by seeing the Flow Indicator with its integrated impeller, and bright Blue LED produces an elegant feel.

6. External Pump Installation

6. 1 Installing the External Water Pump

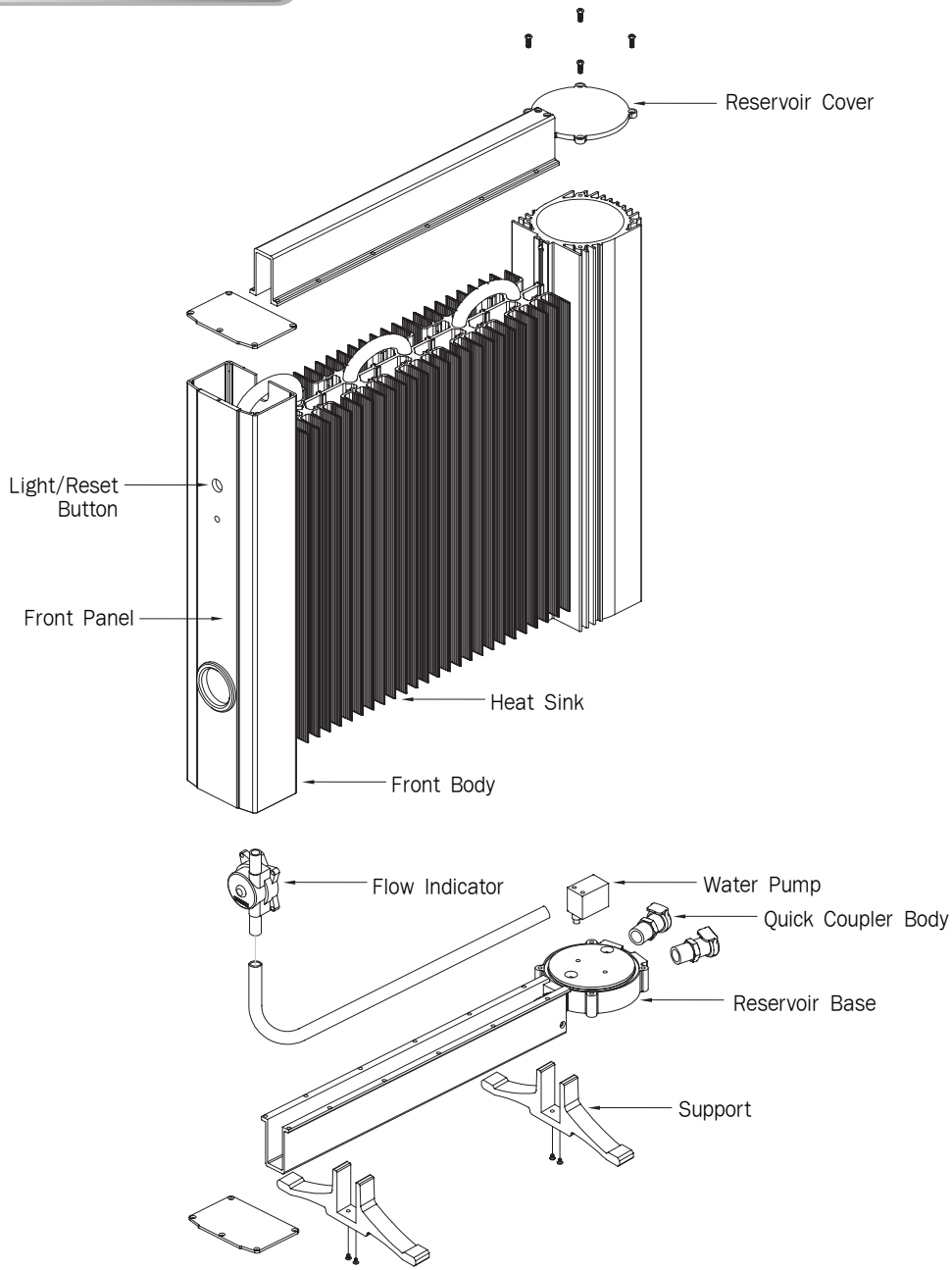


After determining the placement of the External Water Pump, check the components that create a path as shown above. If is recommended that the installation is done in such a manner.

6. 2 Cautionary Notes on Choosing and Installing an External Water Pump

1) When installing an External Water Pump, confirm the coolant entrance and exit holes before connection.
2) Check that the chosen Water Pump°Øs holes are compatible with the provided PVC tubes (12 x 8 mm).
3) Zalman Tech is not responsible for performance degradation or malfunction of a system that results from using an external Water Pump.

7. Exploded View



8. Zalman Noise Prevention System

Stable performance and noiseless liquid cooling system can both be achieved with the use of Zalman's Noiseless Power Supply, Hard Disk Cooler and Noiseless Case Fan, Northbridge Water Block.

Noiseless Power Supply

Heatpipe HDD Cooler

Noiseless Case Fan

Northbridge Water Block

TNN(Totally No Noise) Computer Case

TNN 300

TNN 500AF

TNN Computer Enclosures are the world's first environment-friendly noiseless computer enclosures that operate without the use of a fan. TNN Computer Enclosures use the aluminum enclosure itself as a heatsink. They are ideal for environments that require silence, as well as for home theatre systems and multi-media systems.

Home Theater PC Enclosures

HD160

The HD160 is designed for ultra quiet home theatre PC operation, utilizing optimized ventilation and anti-vibration reinforcements, making it ideal for environments that require silence such as living rooms, bedrooms, educational facilities, and offices.

For more information, please visit our website.

Disposal of Old Electrical & Electronic Equipment
(Applicable in the European Union and other European countries with separate collection systems)